



Order Patent

(19)



JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: 200319697

(43) Date of publication of application: 11.07.1

(51) Int. Cl. G11C 11/403
G11C 11/406

(21) Application number: 2001397575

(22) Date of filing: 27.12.2001

(71) Applicant: NEC ELECTRONICS CORP
NEC MICROSYSTEMS LTD
(72) Inventor: TAKAHASHI HIROYUKI
HIROTA TAKUYA
KOMATSU NORIAKI
NAKAGAWA ATSUSHI
TAKANO SUSUMU
YOSHIDA MASAHIRO
TORIGE YUJI
INABA HIDEO

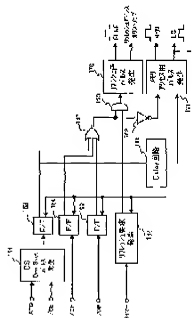
(54) SEMICONDUCTOR STORAGE DEVICE

COPYRIGHT: (C)2003,JPO

(57) Abstract:

PROBLEM TO BE SOLVED: To periodically carry out refresh of a memory cell by a refresh timer and to avoid the contention between a memory access and memory refresh.

SOLUTION: When a memory access is made, a F/F163 is set by a one shot pulse from an OS circuit 161, a memory access request is inputted into a memory access pulse generating circuit 171 through a NOR gate 167 and a latch control signal LC and an enable signal REN are outputted. When a refresh request is inputted into an AND gate 168 from the refresh timer and it is making memory access, the output of the NOR gate 167 becomes an 'L' level and the refresh request is blocked by the AND gate 168. After that, when the signal LC becomes an 'L' level, F/Fs 163, 164 and 165 are reset, the output of the NOR gate 167 becomes an 'H' level, the refresh request is inputted into a refresh pulse generating circuit 170 and a refresh enable signal RERF is outputted.





OrderPatent